

REMARKS

Claims 5, 7-9, and 12-16 were pending in the present application. Claim 5 has been amended, and claims 17-20 have been added. No claims are cancelled. Support for the amendment to claim 5 may be found, e.g., on page 6, lines 6-8 of the present application, and support for the new claims may be found on the paragraph spanning pages 5 and 6 of the application. Therefore, claims 5, 7-9, and 12-20 are now pending.

Prior Art Rejections

Claims 5, 8-9, and 12-16 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,917,556 to Stark et al. (hereinafter "Stark") in view of U.S. Patent No. 6,178,361 to George et al. (hereinafter "George"), U.S. Patent No. 5,733,024 to Slocum et al. (hereinafter "Slocum"), and U.S. Patent No. 4,825,808 to Takahashi et al. (hereinafter "Takahashi").

Claim 7 is not indicated as being rejected in view of the prior art.

Applicants respectfully traverse the rejections for at least the following reasons.

Independent claim 5 recites that "the workstation has, on at least two different side walls, kinematic coupling connecting elements that coact with corresponding kinematic coupling connecting elements on at least one side wall of the substrate conveying module." The PTO acknowledges that Stark fails to "disclose the use of kinematic coupling elements," but alleges that all of the other elements of the claim are met by Stark. However, Applicants respectfully submit that Stark is deficient in at least one other area, as will now be discussed.

It is alleged in the Office Action that element 20a of Stark satisfies the recitation of a substrate conveying module and that elements 31c and 31b satisfy the recitation of a workstation. Assuming *arguendo* that this is correct, nowhere is there a teaching of a connector having a connecting element (regardless of whether or not the connector is a kinematic coupling) on a side wall of elements 20a, 31c, and 31b. In fact, Fig. 3 shows that any side walls having the alleged features constituting the substrate conveying module and the workstation are separated by gate valve modules 10c and 10d, leaving no room for a connector configuration as claimed vis-à-vis the sidewall recitations. Applicants therefore respectfully submit that assuming *arguendo* that it would have been obvious to utilize

kinematic couplings in Stark (which it is not, as will be explained below), any such kinematic couplings would be located on walls other than those as claimed. Indeed, it is more likely that such couplings would be located on the bottom of elements 31c and 31b, connecting instead to a common platform supporting the assembly, thus retaining its reconfigurability while also providing clearance for the modules 10. In this regard, Stark most definitely teaches away from the present invention. Thus, the claims are allowable even prior to the above amendments, but there is more.

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In Applicants' Amendment and Reply filed Sept. 25, 2003, Applicants argued that "the kinematic coupling connecting elements [as recited in claim 1] provide 'for an immovable connection between the modules, but at the same time the two modules are automatically aligned with one another by way of the corresponding fits.' (Emphasis added.)" Applicants pointed out that such kinematic coupling connecting elements are not taught or disclosed in any of the cited references. Applicants further offered to import the above description of kinematic coupling connecting elements directly into claim 5, if necessary. The PTO has not addressed Applicants' arguments, or to recommend whether the above description should be imported into claim 5. Therefore, in order to advance prosecution, Applicants have amended claim 5 consistent with the above description, and re-iterate Applicants' previous arguments.

Amended claim 5 recites that the workstation has, on at least two different side walls, kinematic coupling connecting elements that coact with corresponding kinematic coupling connecting elements on at least one side wall of the substrate conveying module to provide for an immovable connection between the workstation and the substrate conveying module while simultaneously automatically aligning the workstation with the substrate conveying module. None of the cited references teaches, suggests, or discloses kinematic coupling connecting elements as claimed. This feature allows the customer to reconfigure the system, as needed.

George discloses MHU exhaust interface port 16 (on MHU 1) and process module exhaust interface connection 17 (on process module 2). While it is true that these ports 16, 17 are self-aligning, George teaches that the MHU latch clevis assembly 11 (not ports 16,

17 or roller 14 and ramp 15) provides the immovable connection between MHU 1 and process module 2. (Col. 10, lines 45-67.) In other words, because the immovable connection and the self-alignment are performed by different elements, connection by the MHU latch clevis assembly 11 happens at a different time than the self-alignment of the ports 16, 17. Therefore, George does not disclose kinematic coupling connecting elements that provide an immovable connection between the MHU 1 and process module 2 while simultaneously automatically aligning them.

Further, Slocum does not teach that the kinematic couplings provide for an immovable connection between a workstation and a conveying module while simultaneously automatically aligning a workstation with a substrate conveying module. For example, Fig. 16 presents the only teaching in Slocum of a module attached to a workstation, assuming *arguendo* that silo 109 constitutes a workstation. As shown in Fig. 16, modules 111 are readily removable from main frame 114, in spite of the kinematic couplings (element 112 being the male portion of the coupling, as is taught at column 8, lines 63-67). That is, the only thing that holds the modules 111 to the silo 109 is gravity. Thus, Slocum fails to teach an immovable connection between a module and a workstation.

Moreover, every instance of a teaching of a kinematic coupling in Slocum is directed towards vertically “stacked” components, except for the embodiments of Figs. 28-30. In Figs. 28-30, showing kinematic couplings for horizontally assembled components, the kinematic couplings clearly fail to form an immovable connection between components while simultaneously automatically aligning the components. In this regard, as to the combination of Stark and Slocum, even if the skilled artisan would be able to overcome the fact that Stark teaches away from connectors arrayed on sidewalls as claimed, the skilled artisan would gravitate to the connectors for horizontal assembly depicted in Figs. 28-30 of Slocum, which fail to meet the recitation that the coupling forms an immovable connection. Thus, it would not be obvious to combine Slocum and Stark to arrive at the present invention.

Stark and Takahashi fail to cure the deficiencies of George and Slocum. None of the cited references, individually or in combination, teaches, suggests, or discloses kinematic coupling connecting elements as claimed. Therefore, claim 5, and all claims dependent therefrom, are believed to be patentable over the cited art.

Dependent claims 12-16 are believed to be patentable over the cited prior art for at least the same reasons as claim 5, and contain additional patentable limitations. For example, claim 12 recites that the substrate conveying module has kinematic coupling connecting elements on at least two different side walls. George discloses a process module 2 having process module exhaust interface connection 17. George does not teach, suggest, or disclose that process module 2 has connections 17 on more than one side wall.

Claim 7

Claim 7 is indicated as being rejected. However, the Office Action fails to layout grounds for its rejection. Applicants have placed claim 7 into independent form, as seen above (thus it contains the same recitations as were contained therein at the time the Office Action was issued) and submit that claim 7 is allowable.

Conclusion

Applicants believe that the present application is now in condition for allowance.
Favorable reconsideration of the present application is respectfully requested.

Examiner Bratlie is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

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FOLEY & LARDNER LLP
Customer Number: 22428



22428

PATENT TRADEMARK OFFICE

Telephone: (202) 295-4747
Facsimile: (202) 672-5399

By

Martin J. Cosenza
Attorney for Applicants
Registration No. 48,892

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